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The effects of introduction of the Moscow Central Circle rail passenger service: transport, urban, economic and travel behaviour consequences

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In 2016 passenger service on the Moscow Central Circle (MCC, a circular urban rail line in Moscow) was reintroduced after its closure in 1934. The launch of this line allowed us to study the effects of a transport infrastructure project using observed rather than model-forecasted data.

We collected empirical data on changes in real estate values, land use, transportation flows and travel behaviour as consequences of integration of the new rail line into existing urban transit system.

The research project consists of several parts. First, we studied residential rent rates. The rent growth effect was most substantial in the residential areas around Moscow Central Circle stations without access to existing metro stations.

Second, we used the Node-Place model to evaluate the magnitude of the potential (and officially planned) land use changes in the long-run, i.e. the increase in the place value. We revealed that the long-term MCC impact is modest, because the opportunities for land use change around the MCC stations are currently limited and therefore the increased node value is not accompanied by the proportional change of the place value.

Third, we used Moscow Metro origin-destination matrices for typical working days in March 2016 and March 2017 to evaluate the impact of the MCC on the redistribution of passenger traffic volumes. We observed an insignificant decline in load level of Metro Circle line and radial lines and interchanges in the city centre.

Finally, we studied changes in travel behaviour. The majority of respondents do not use the MCC to reach locations near new stations but use it mostly to optimise their existing routes, which also supports the findings of the relatively low place value of the territories around the new stations.

Repeating the same measurements regularly will allow us to monitor the changes in the use of the MCC and track its performance and its effects over time. This paper covers the short-term effects that occurred in the first 12 months of the MCC operation.